

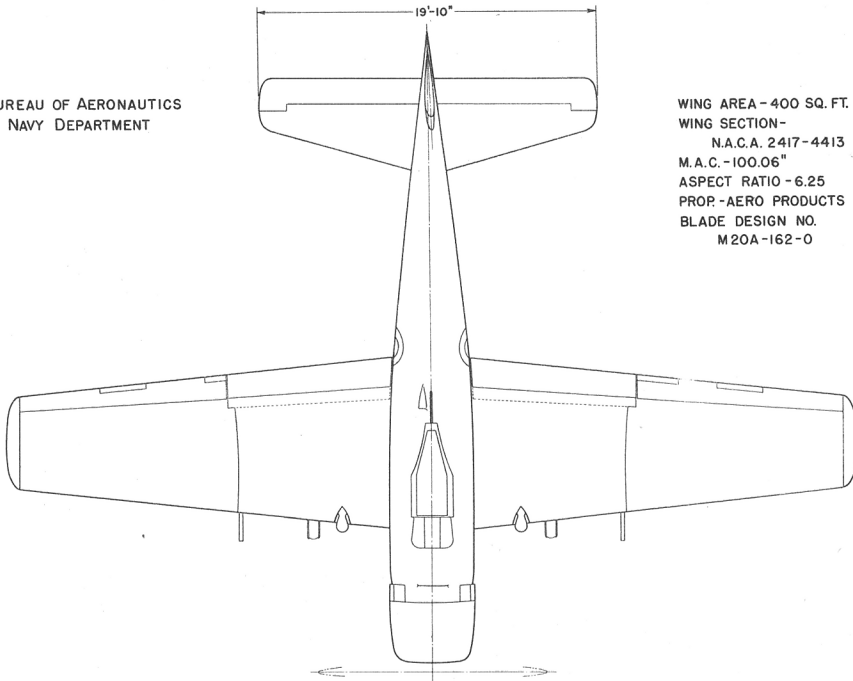
STANDARD AIRCRAFT CHARACTERISTICS

AD-4N "SKYRAIDER"

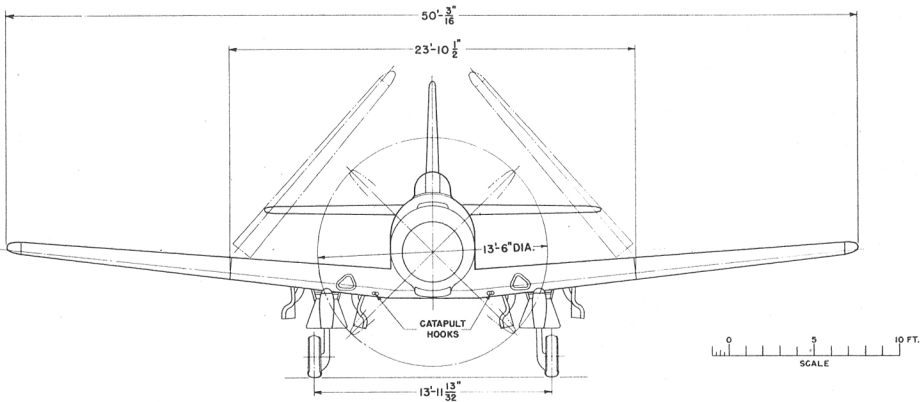
DOUGLAS

Standard Aircraft Characteristics NAVAER 1335A (REV. 1-49)

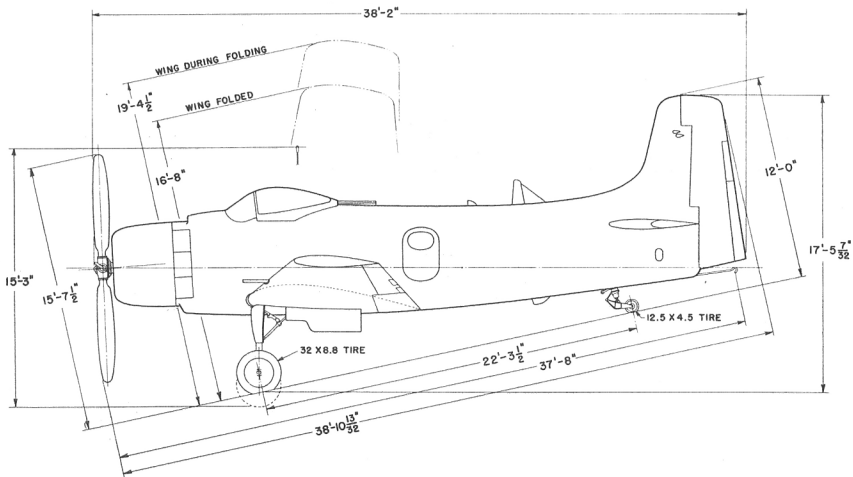
BUREAU OF AERONAUTICS
NAVY DEPARTMENT



WING AREA - 400 SQ. FT.
WING SECTION -
N.A.C.A. 2417-4413
M.A.C. - 100.06"
ASPECT RATIO - 6.25
PROP - AERO PRODUCTS
BLADE DESIGN NO.
M20A-162-0



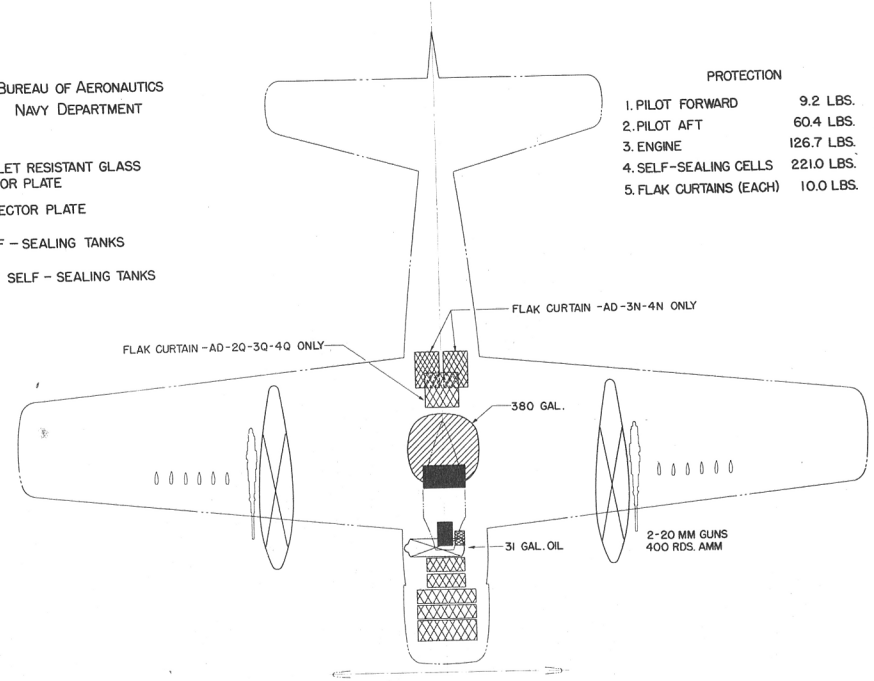
0 5 10 FT.
SCALE



DESCRIPTIVE ARRANGEMENT

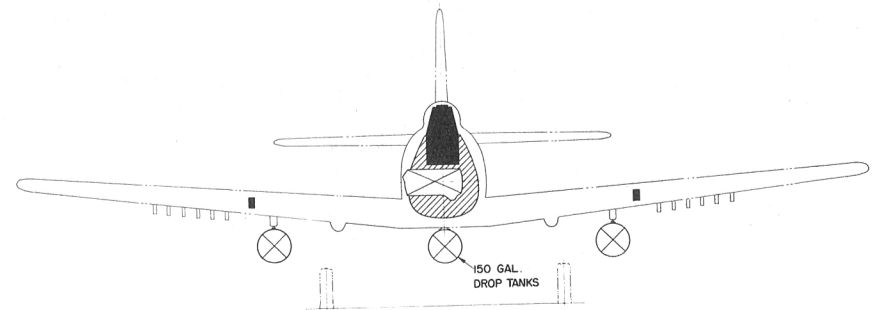
BUREAU OF AERONAUTICS
NAVY DEPARTMENT

- BULLET RESISTANT GLASS ARMOR PLATE
- ▨ DEFLECTOR PLATE
- ▩ SELF-SEALING TANKS
- ⊠ NON SELF-SEALING TANKS



PROTECTION

- | | |
|-------------------------|------------|
| 1. PILOT FORWARD | 9.2 LBS. |
| 2. PILOT AFT | 60.4 LBS. |
| 3. ENGINE | 126.7 LBS. |
| 4. SELF-SEALING CELLS | 221.0 LBS. |
| 5. FLAK CURTAINS (EACH) | 10.0 LBS. |



0 5 10 FT.
SCALE

ARMAMENT AND TANKS

Standard Aircraft Characteristics NAVAER 1335B (REV. 1-49)

MISSION AND DESCRIPTION

The principle mission of the AD-4N aircraft is that of night attack or submarine attack. It may also be used as a torpedo plane or scout. This model of the AD-4 series is a single engine, three place attack airplane with all necessary equipment for operation from carriers. General arrangement is similar to the AD-3N airplane. By interchange of equipment, the airplane may be converted to perform either of its principle missions.

The fuselage arrangement provides separate compartments for the pilot and radar operator. The pilot's compartment contains the flight controls and instruments, bombing, torpedo, rocket firing, sonobuoy dispensing, wing folding, arresting gear, etc. controls. The after compartment has accommodations for a radar operator-navigator with partial control of the radio, complete control of radar equipment, radar bombing attachment, sonobuoy receiver, auto pilot, and navigational instruments, and for an RCM operator with partial control of the radio and control of the radar counter-measure equipment. An entrance door is provided on each side of the after compartment for normal access and through emergency release for bail-out.

DIMENSIONS

WING AREA.....400 sq. ft.
SPAN.....50' - 0"
LENGTH.....38' - 2"
HEIGHT.....15' - 8"
TREAD.....13' - 11"
M.A.C.....8' - 4"
PROP. CLEAR.....6"

WEIGHTS

Loadings	Lbs.	L.F.
EMPTY.....	11,594.....	
BASIC.....	12,341.....	
DESIGN.....	15,600..	7.0
COMBAT.....	16,021..	6.8
MAX.T.O..(Cat.)..	19,700..	5.5
(Field).....	24,832*..	4.3
MAX.LD.(Smooth).....	19,000.....	
(Rough).....	16,800.....	
(Arrest.).....	17,000.....	
(Qualif.).....	15,600.....	

*Tentative. Limited by space.
All weights are calculated.

FUEL AND OIL

Gal.	No. Tanks	Location
380	1	Fuse., S.S.
150	1	Ctr., Drop
300	2	Wing, Drop

FUEL GRADE.....115/145
FUEL SPEC.....AN-F-48

OIL

CAPACITY (Gals.).....31
GRADE.....1120
SPEC.....AN-O-8

ELECTRONICS

VHF COMM.....AN/ARC-1
MHF COMM.....AN/ARC-2
RANGE REC.....AN/ARC-5
VHF NAVIGATION.....AN/ARR-2A
SEARCH & AIM RDR..AN/APS-19A
LAB BOMB SIGHT.....AN/APA-16
RCM HOMING ADAP...AN/APA-70A
RCM RECEIVER.....AN/APR-9
ALT INJECTION.....AN/APA-61
RCM PULSE ANAL.....AN/APA-64
IFF.....AN/APX-2
IFF.....AN/APX-6
RADIO ALTM.....AN/APN-1

POWER PLANT

NO. & MODEL....(1) R-3350-26W
MFR.....Wright
SUPERCH.....1 Stage, 2 Speed
PROP. GEAR RATIO.....0.4375
PROP. MFR.....Aero Prod
PROP. DES. NO.....M20A-162-0
NO. BL./DIA.....4/13'-6"

RATINGS

	Bhp @	Rpm @	Alt.
T. O.	2,700	2,900	S. L.
COMBAT	3,020	2,900	S. L.
	2,570	2,600	8,900'
MIL.	2,700	2,900	3,700'
	2,100	2,600	14,500'
NORMAL	2,300	2,600	S. L.
	1,900	2,600	17,100'

SPEC. NO. N-836

ORDNANCE

<u>GUNS</u>			
No.	Size	Location	Rds.
2	20 mm	Wing	400

<u>BOMBS & ROCKETS</u>			
Type	Size	Location	No.
HPAG	5"	Wing	12
HVAR	5"	Wing	12 or
Bomb	250#	Wing	12
A.R.	11.75"	Wing	2
Torp.	Mk-13	External	3
D.B.	325#	External	3
Bomb	500#	External	3
Bomb	2,000#	External	3
Mine	1,000#	External	3
Mine	2,000#	External	3

FIRE CONTROLS

Illuminated Sight....Mk. 20-0

MAX. BOMB CAP.....7,000 lbs.

~~RESTRICTED~~

PERFORMANCE SUMMARY				
LOADING CONDITION		(1) ATTACK 1-500#, 6-100# Bombs, 1-150 Gal. Tank		(5) ATTACK 1 MK. 41 Torp. 8 HPAG Rockets 1 Sonobuoy Disp.
TAKE-OFF WEIGHT	lbs.	18,155		18,649
Fuel (Fixed/Drop)	lbs.	2,280/900		2,280
Bombs	lbs.	1,100		1,200
Wing/Power Loading (A)	lbs/sq.ft; lbs/bhp.	45.4/9.6		46.6/9.8
Stall Speed--Power off	kn.	81.3		82.4
Stall Speed--Power off - No Fuel	kn.	73.9		77.2
Stall Speed--Power on	kn.	76.2		77.2
Maximum Speed/Alt (B)	kn/ft.	257/18,100		252/18,000
Take-off Distance, deck -- calm	ft.	858		924
Take-off Distance, deck 25 kn.	ft.	410		448
Take-off Distance, Airport	ft.			
Rate of climb -- sea level (B)	ft/min.	2,230		2,090
Service Ceiling (B)	ft.	28,700		27,600
Time-to-climb 10,000 ft. (B)	min.	4.9		5.3
Time-to-climb 20,000 ft. (B)	min.	12.5		14.0
Combat Range/V av 15,000	ft. n.mi/kn.	1,015/170		600/172
Combat Radius/V av A-1	ft. n.mi/kn.	420/175		
Endurance/V av 1,500	ft. hr/kn.			4.9/120
LOADING CONDITION		(2) COMBAT	(3) COMBAT	(4) COMBAT
GROSS WEIGHT	lbs.	16,021	16,021	16,021
Engine power		Combat	Military	Normal
Fuel	lbs.	2,280	2,280	2,280
Bombs/Tanks		AN/APS-19A	AN/APS-19A	AN/APS-19A
Max. speed at sea level	kn.	298	278	261
Max. speed/Alt	kn/ft.	301/10,700	294/16,000	291/18,400
Combat speed/Alt	kn/ft.	297/1,500	282/1,500	265/1,500
Rate of climb SL	ft/min.	3,890	3,470	2,900
Ceiling for 500 fpm R/C	ft.	30,500	30,500	30,500
Time-to-climb/Alt.	min/ft.			

NOTES

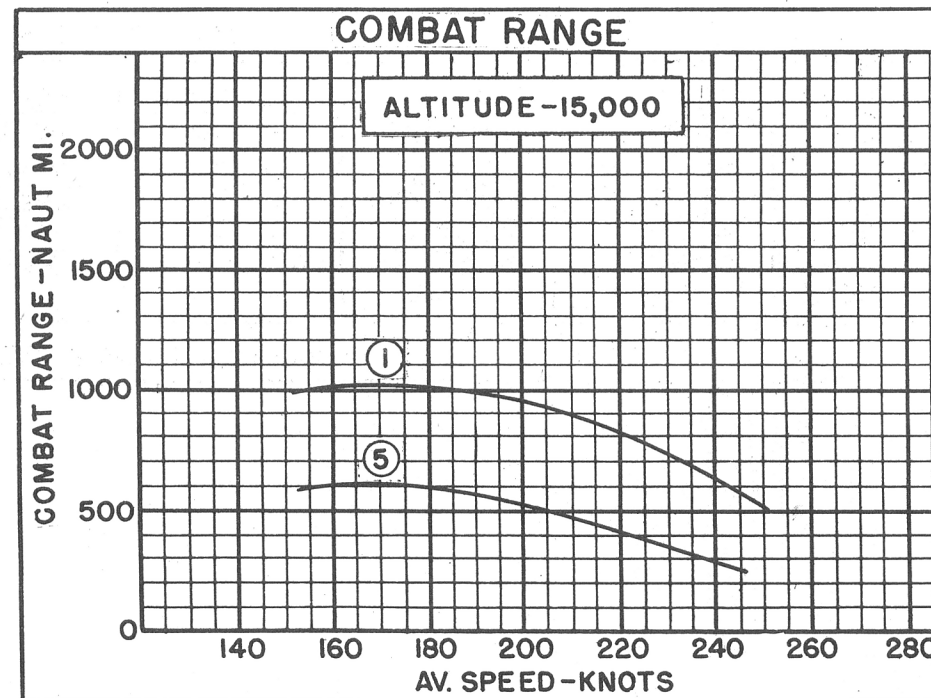
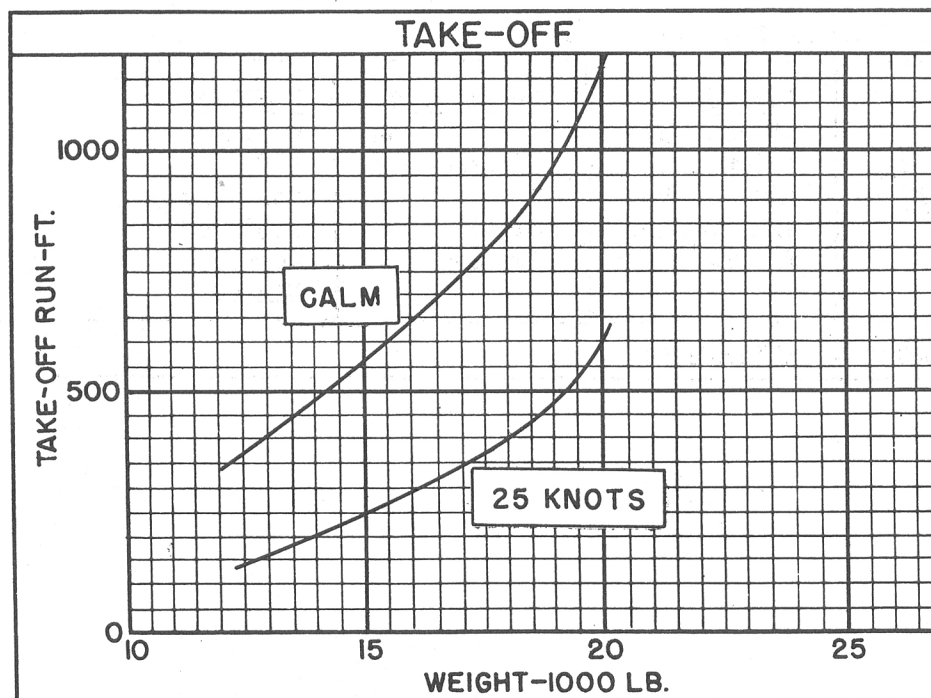
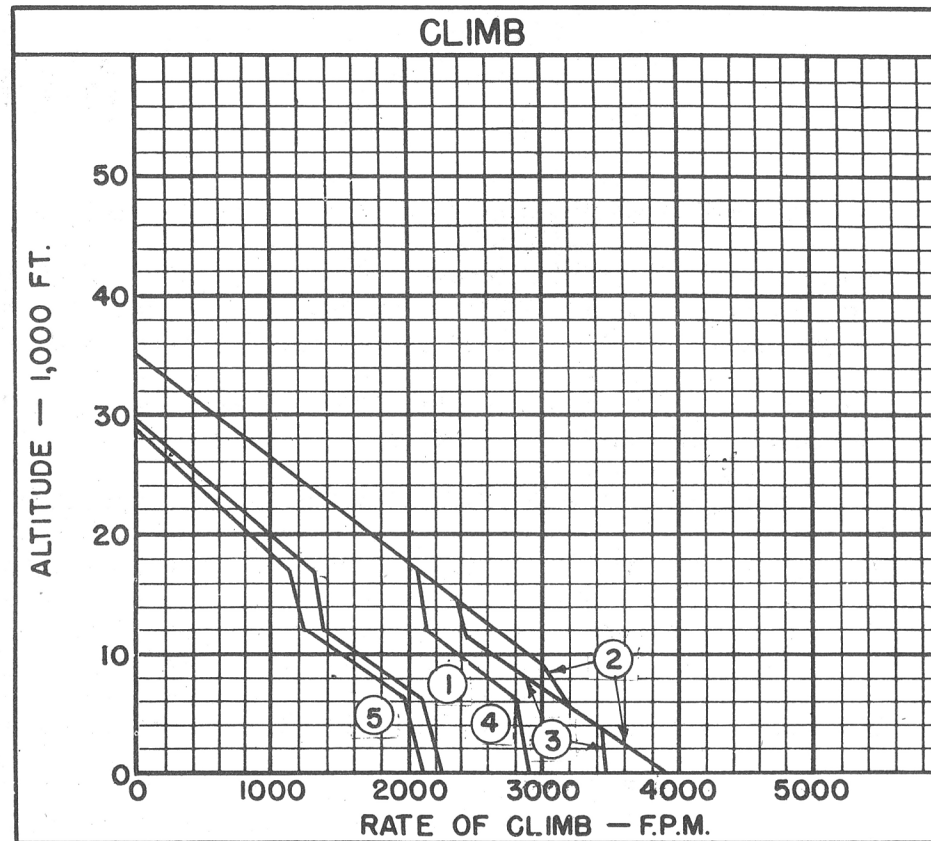
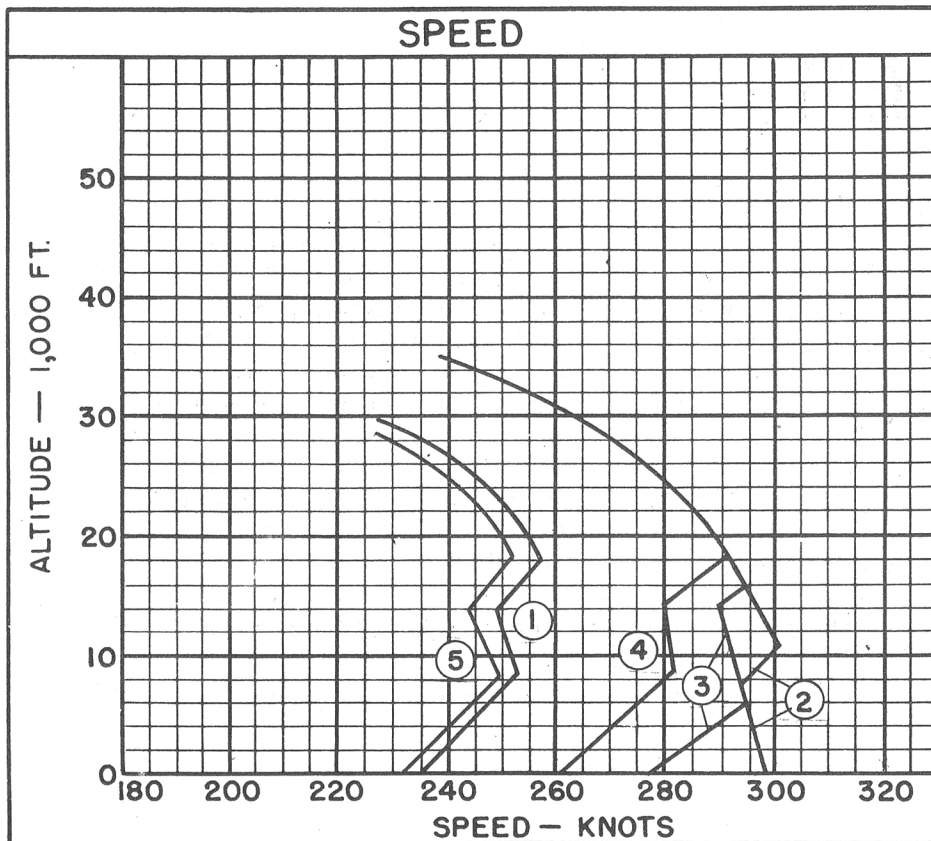
- (A) BHP at Maximum Critical Altitude
(B) Normal BHP

Performance is based on flight test of AD-1 and AD-1Q. Combat range, radius, and endurance are based on engine manufacturer's specification fuel consumption data increased 5%.

Cond. (5) Vav. for maximum endurance calculated as 113 kn. Endurance for Vav. = 120 kn. used because of poor handling qualities at 113 kn. Except for different altitude and speed, same conditions were assumed for endurance as those used in calculating combat range.

AN/APS-19A radar carried in all conditions.

~~RESTRICTED~~



○ LOADING CONDITION COLUMN NUMBER

Standard Aircraft Characteristics NAVAER 1235E (REV. 1-49)

NOTES

Combat conditions (2), (3), and (4) include 6 Mk-55 wing racks.

Removal of 6 Mk-55 wing racks and addition of 8 Mk-9 rocket launchers to Cond. (2) reduces V_{max} . S. L. to 296 kn. and $V_{max./ACA}$ to 299 kn./10,700 ft. Addition of 8 launchers and 8 - 5" HPAG increases gross weight of Cond. (2) to 17,011 lbs. and decreases V_{max} . S. L. to 283 kn. and $V_{max./ACA}$ to 286 kn./10,700 ft.

Twelve 100 lb. bombs or twelve 250 lb. bombs can be carried at Mk-9 rocket launcher positions by replacing launchers with Mk-55 bomb racks.

All loadings include 2 Mk-51 wing bomb racks with sway bracing and fuselage bomb ejector with sway bracing.

Twenty gallons of ADI fluid are available for 12 minutes at combat power.

Spotting: 200 ft. length is required to spot 20 planes on the 96 ft. wide deck immediately aft of the forward ramp on the CV-9 class carriers.

The following Electronics equipment will be service installed:

SONOBUOY RECEIVER.....AN/ARR-31
RADAR RELAY RECEIVER.....AN/ARR-27

ATTACK COMBAT RADIUS FORMULA NO. A-1

<u>WARM-UP</u>	<u>RENDEZVOUS</u>	<u>CLIMB</u>	<u>CRUISE-OUT</u>	<u>DROP TANKS</u>	<u>COMBAT</u>	<u>CRUISE-BACK</u>	<u>RESERVE</u>
20 min. $\frac{1}{2}$ Normal RPM	20 min. at Sea Level at 60%	to 15,000 ft. at Normal Power	at 15,000 ft. 180 kts. TAS Normal Mixture	<u>DESCEND</u> to 1,500 ft. <u>DROP BOMBS</u> FIRE ROCKETS	15 min. at 1,500 ft. 5 min. combat and 10 min. N. Pr.	at 1,500 ft. 170 kts. TAS Normal Mixture	60 min. at V for Max. Range at 1,500 ft. Normal Mixture

$$\text{RADIUS} = \text{CLIMB} / \text{CRUISE-OUT} = \text{CRUISE-BACK}$$